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EXAMINER

NGUYEN, HOAN C

ART UNIT PAPER NUMBER

2871

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/823,023

Applicant(s)

MATSUYAMA, HIROAKI

Examiner

HOAN C. NGUYEN

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-7, 10-16, 21, 22 and 24-42 is/are pending in the application.
- 4a) Of the above claim(s) 5-7, 10-14, 16, 24-33, 40 and 41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4, 15, 21, 22, 34-39 and 42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election of Group A and subspecies B (claims 4, 15, 21, 22, 34-39 and 41-42, Fig. 3) in the reply filed on 08 June 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 1-3, 8-9, 17-20 and 23 are cancelled.

Claim 40 is not elected and withdrawn; therefore, claim 41 is withdrawn since claim 41 depends on the non-elected/withdrawn claim 40.

Claims 5-7, 10-14, 16, 24-33 and 40-41 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 08 June 2005. Therefore, claims 4, 15, 21, 22, 34-39 and 42 are elected.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double

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patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. Claims 4, 21, 22, 34 and 42 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4 of U.S.

Patent No. 6774974. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

- Claim 4 of the instant application participates with claims 1 and 3 of US6774974.
- Claims 21-22 of the instant application participates with claims 4-8 of US6774974
- Claim 34 of the instant application participates with claim 1 of US6774974 since the claim 34 of the instant application is broader than claim 1 of US6774974.
- Claim 42 of the instant application participates with claim 4 of US6774974 since the claim 42 of the instant application is broader than claim 4 of US6774974.

2. Claims 15 and 34-39 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4 of U.S.

Patent No. US6774974 in view of SHIMURA et al. (JP411160716A). Claim 15 and 34-39 of the instant application participates with claims 1-4 except for liquid crystal contiguous to the surface of the columnar spacer aligned substantially parallel to the surface of the columnar spacer (claims 15, 35 and 38).

SHIMURA et al. teach (Fig. 7) a liquid crystal contiguous to the surface of the columnar spacer aligned substantially parallel to the surface of the spacer for enabling a

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high contrast display, which is reliable against a process fluctuation, vibration and impact and is lessened in display unevenness (abstract).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a multi-domain alignment active-matrix liquid crystal display device with a liquid crystal contiguous to the surface of the columnar spacer aligned substantially parallel to the surface of the spacer for enabling a high contrast display, which is reliable against a process fluctuation, vibration and impact and is lessened in display unevenness as taught by SHIMURA et al. (abstract).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 42 is rejected under 35 U.S.C. 102(b) as being anticipated by Yamada et al. (US6344883B2).

Yamada et al. teach (Fig. 32) a multi-domain alignment active-matrix liquid crystal display device comprising:

- first and second transparent plates 521-522 arranged to oppose each other;
- a liquid crystal being sandwiched between the first and second plates (col. 3 lines 31-33), and

- pixel electrodes 520 disposed on one of said plates and counterelectrodes 519 disposed on the other of said plates and adapted to apply voltage to the liquid crystal across the pixel electrodes and the counterelectrodes;

wherein

- an orientation layer 510 is provided at least on each pixel electrode disposed on one of said plates,
- at least one columnar spacer is provided on said orientation layer between the two opposing plates for regulating a panel gap between said plates, said at least one columnar spacer disposed approximately at a center of a pixel.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 34-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horie et al. (US6061117A) in view of Miyachi et al. (US6211937B1) and SHIMURA et al. (JP411160716A).

Horie et al. disclose (Figs. 5 and 10B) a multi-domain alignment active-matrix liquid crystal display device comprising:

- first and second transparent plates^{1/2} arranged to oppose each other;
- a liquid crystal being sandwiched between the first and second plates,

- pixel electrodes 3 disposed on one of said plates and counterelectrodes 6 disposed on the other of said plates and adapted to apply voltage to the liquid crystal across the pixel electrodes 3 and the counterelectrodes 6;

wherein

- an orientation layer 16/17 (Fig. 5 shown) is provided at least on each pixel electrode disposed on one of said plates, and at least one columnar spacer (protrusion/convex portion 4, the height of 4 is less than the cell gap) having a side surface of that is slanted or inclined is provided between the two opposing plates for regulating a panel gap between said plates, said at least one columnar spacer disposed approximately at a center of a pixel (col. 4 line 28 to col. 5 line 17, col. 7 lines 29-48 and col. 15 lines 39-65).

Claim 36:

- said at least one columnar spacer has a diameter varying along its axis as Fig. 5 shown.

Claim 37:

- said at least one columnar spacer has a diameter decreasing or increasing toward one end thereof as Fig. 5 shown.

Claim 38:

- said side surface is adapted to pre-align molecules of the liquid crystal substantially parallel to the sidewall since the convex portion 4 is formed by a material having the vertical alignment property (col. 15 line 58-60).

Claim 39:

- said orientation layer is formed into a curved or slanted surface so as to orient molecules of the liquid crystal in a defined direction normal to the curved or slanted surface of said orientation layer since the concave portion 15 is formed by a material having the vertical alignment property (col. 15 line 58-60).

However, Horie et al. fail to disclose a multi-domain alignment active-matrix liquid crystal display device comprising at least one columnar spacer provided between the two opposing plates for regulating a panel gap between plates wherein the surface of the columnar spacer is adapted to pre-aligned liquid crystal surrounding each columnar spacer substantially parallel to the surface of the columnar spacer (claims 34 and 38).

Miyachi et al. teach (Figs. 8-9) a multi-domain alignment active-matrix liquid crystal display device comprising at least one columnar spacer provided between the two opposing plates for regulating a panel gap between plates (col. 2 lines 62-64).

SHIMURA et al. teach (Fig. 7) a liquid crystal to the surface of the columnar spacer aligned substantially parallel to the surface of the spacer for enabling a high contrast display, which is reliable against a process fluctuation, vibration and impact and is lessened in display unevenness (abstract).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a multi-domain alignment active-matrix liquid crystal display device as Horie et al. disclosed with at least one columnar

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spacer provided between the two opposing plates for regulating a panel gap between plates as taught by Miyachi et al. (col. 2 lines 62-64); wherein a liquid crystal contiguous to the surface of the columnar spacer aligned substantially parallel to the surface of the spacer for enabling a high contrast display, which is reliable against a process fluctuation, vibration and impact and is lessened in display unevenness as taught by SHIMURA et al. (abstract).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Yamanaka et al. (US5986729A) disclose a multilayer liquid crystal display device with spacer inside the pixel electrode.

Namkamura et al. (US5576860A) disclose a liquid crystal display device with rough surface reflector.

Hasegawa et al. (US5499128A) disclose a liquid crystal display device with polymer spacers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (571) 272-2296. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim H. Robert can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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HOAN C. NGUYEN
Examiner
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A handwritten signature in black ink, appearing to read 'Dung T. Nguyen', with a long horizontal flourish extending to the right.

DUNG T. NGUYEN
PRIMARY EXAMINER